

IN THE CLAIMS

1-17. (Cancelled)

Claim 18 has been amended as follows:

18. (Currently Amended) A congestive heart failure monitor comprising:
an impedance-measuring unit having two electrodes configured ~~adapted to~~
~~interact with a patient~~ to measure an impedance ~~representative of~~
signal in a patient that directly indicates and has a signal characteristic
representing a change in a volume of the left atrium of the heart of the
patient; and
an analyzing unit supplied with a signal representing said impedance, said
analyzing unit including a quotient determining unit that determines a
quotient between a minimum value of said impedance signal and a
maximum value of said impedance signal during a cardiac cycle of said
heart, said analysis unit detecting congestive heart failure dependent
on said quotient.

Claim 19 has been amended as follows:

19. (Currently Amended) A monitor as claimed in claim 18 wherein said
analysis unit includes an averaging unit that forms an average value of said
impedance signal during a plurality of cardiac cycles of said heart, and wherein said
analysis unit additionally uses said average value to detect congestive heart failure.

20. (Previously Presented) A monitor as claimed in claim 19 comprising a
comparator that compares said average value with a predetermined impedance

threshold value, to obtain a comparison result, and wherein said analyzing unit detects congestive heart failure dependent on said comparison result.

21. (Previously Presented) A monitor as claimed in claim 20 wherein said averaging unit forms a floating average value of said impedance during a predetermined number of preceding cardiac cycles for use as said impedance threshold value.

22. (Previously Presented) A monitor as claimed in claim 18 wherein said analyzing unit comprises a quotient averaging unit that forms an average value of said quotient over a plurality of cardiac cycles of said heart, and wherein said analyzing unit uses said average value of said quotient to detect congestive heart failure.

23. (Previously Presented) A monitor as claimed in claim 22 wherein said analysis unit comprises a comparator that compares said average value of said quotient with a predetermined quotient threshold value, to obtain a comparison result, and wherein said analyzing unit detects congestive heart failure dependent on said comparison result.

24. (Previously Presented) A monitor as claimed in claim 23 wherein said quotient averaging unit forms a floating average value of said quotient during a predetermined number of preceding cardiac cycles for use as said quotient threshold value.

Claim 25 has been amended as follows:

25. (Currently Amended) A monitor as claimed in claim 18 comprising an averaging unit that forms an average value of said impedance signal during a plurality of cardiac cycles, and a comparator that compares said average value of said impedance signal to a predetermined impedance threshold value, and a quotient averaging unit that forms an average value of said quotient over said plurality of cardiac cycles, said comparator also comparing said average value of said quotient to a predetermined quotient threshold value to obtain a second comparison result, and said analysis unit detecting congestive heart failure dependent on both said first and second comparison results.

Claim 26 has been amended as follows:

26. (Currently Amended) A monitor as claimed in claim 18 wherein said electrodes are adapted configured respectively for implantation in the right atrium and the left atrium of said heart.

Claim 27 has been amended as follows:

27. (Currently Amended) A monitor as claimed in claim 18 wherein said electrodes are adapted configured for implantation respective in the right atrium and the left ventricle of said heart.

28. (Previously Presented) A monitor as claimed in claim 18 comprising a housing adapted for implantation in said patient, said housing containing said impedance-measuring unit and said analyzing unit, and wherein a first of said electrodes is adapted for implantation in the left atrium of said heart, and a second of said electrodes is formed by an exterior of said housing.

Claim 29 has been amended as follows:

29. (Currently Amended) A monitor as claimed in claim 18 wherein said electrodes are ~~adapted~~ configured for implantation respective in the left atrium of said heart and the left ventricle of said heart, proceeding in a coronary vein.

30. (Previously Presented) A monitor as claimed in claim 18 wherein said impedance-measuring unit comprises a measuring circuit formed by a synchronous demodulator for obtaining both real and imaginary parts of said impedance.

Claim 31 has been amended as follows:

31. (Currently Amended) A monitor as claimed in claim 18 wherein said impedance-measuring unit determines a phase angle of said impedance signal and wherein said analyzing unit analyzes said phase angle to detect congestive heart failure.

32. (Withdrawn) A multi-site heart stimulator comprising:

a stimulation unit adapted to interact with cardiac tissue to electrically stimulate said cardiac tissue with pacing pulses;

an impedance-measuring unit having two electrodes adapted to interact with a patient to measure an impedance representative of a change in a volume of the left atrium of the heart of the patient, and an analyzing unit supplied with a signal representing said impedance, said analyzing unit including a quotient determining unit that determines a quotient between a minimum value of said impedance and a maximum value of said impedance during a cardiac cycle of said heart, said analysis unit detecting congestive heart failure dependent on said quotient; and

a control unit connected to said stimulation unit and to said monitor for controlling delivery of said pacing pulses by said stimulation unit dependent on detection of congestive heart failure by said monitor.